DRAGON Data Ltd

DRAGON WORLD

No.3 April 84 60p

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1 9
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WHIRLYBIRD RUN

SPECIAL FEATURES Word processing

NEW RELEASES FOR THE DRAGON 32/64 FROM SALAMANDER SOFTWARE

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This program has been designed to provide a method of drawing pictures with your computer which is both fun and educational, and yet simple enough to be enjoyed by the young or inexperienced computer user and the enthusiast alike.

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- Snappy 32 page manual included.
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- Simple command structure
- Repeat command sequences – can be nested to 32 levels
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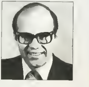
Look out for these other new releases from Salamander Software

DRAGON: **Wings of War £7.95** (WW II Adventure). **The Cricklewood Incident £7.95** (Weird & Wonderful Adventure)

BBC: **Eagle £7.95** (Original-Arcade Action). **Turbo £9.95** (BASIC Compiler)

INTRODUCTION TO 'DRAGON WORLD'



We are all excited this month with our distribution deal with GEC which will offer Dragon considerable opportunities to prosper and grow This arrangement also provides more exciting products as a result of combining our resources which we are confident you will find interesting and useful

Dragon still continues to flourish overseas and this month we greet new readers in Canada and welcome their involvement in the DRAGON WORLD

Finally may we thank you for your continuing support for DRAGON WORLD We are very pleased with the response to date and look forward to your correspondence which is proving to be most helpful

SUBSCRIPTION OFFER

SUBSCRIPTIONS FOR DRAGON WORLD CAN BE OBTAINED DIRECT FROM DRAGON DATA FOR £4 THIS WILL ENTITLE YOU TO 6 BI-MONTHLY ISSUES MAILED DIRECTLY TO YOU AND THE FORM FOR THIS CAN BE FOUND IN A SEPARATE INSERT TO THIS MAGAZINE IF YOU KNOW OF ANYBODY WHO MIGHT BE INTERESTED WHO CURRENTLY DOESN'T RECEIVE THE MAGAZINE PLEASE LET THEM KNOW OF THIS FACILITY

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EDITORIAL

We have been aware for some time that there is a need for more peripherals for Dragon computers so we are delighted to be able to give you the advance information that a whole new range of products including printers plotters and a data recorder will be available shortly Full details will be given in the next issue of 'Dragon World' This coupled with the new product range to be launched soon, means a very exciting future for Dragon Data

You may well have heard that GEC have signed a sales and marketing agreement with Dragon Data It will be of great benefit to all to have the strength of the mighty GEC behind Dragon Data and GEC have been able to add home computers to their vast range of products We hope this arrangement will enable Dragons to be available in far more outlets than before but let us assure you that Dragon Data will still be here to help you with any problems or difficulties you may have

The winner of the Dragon User of 1983 competition has been decided This was a very difficult task as the standard of entries was so high thank you for all your entries — we hope to have a similar competition this year

The response to our software offers has been immense and we are pleased to say that we have more special offers for you this issue New software titles are appearing on a regular basis and reviews on several items are included in this issue

We do appreciate receiving contributions from Dragon Users, as usual please send all communications to the editorial address

Kathy Ashton

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Tel: 0656 744700

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Advertising Kevin Stephens
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present . . . TWO NEW RELEASES

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PETITE PASCAL
an integer subset of the structured programming language for the
DRAGON 32 MICROCOMPUTER
SPRINT
Basic Compiler
For the DRAGON 32
OASIS SOFTWARE

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PETITE PASCAL

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DRAGON 32 & 64

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- Six levels of play
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- High resolution graphics which can be flipped round to make black or white play from either end
- Simultaneous text and graphics
- Sides [illegible] stage
- Best mo[illegible]
- Set up fro[illegible]
- Openin[illegible] and
- Moves may [illegible] play resume[illegible]

"I thought this was an excellent version of the game. Well worth buying." (Home Computer Weekly)

- U[illegible] the ga[illegible]
- W[illegible]
- Very h[illegible]
- Profes[illegible] time[illegible]

"Dragonchess is without doubt the best value chess on the market today." (M[illegible])

DRAGONCHESS
BACKGAMMON
From Novice to Master for the DRAGON 32
BACKGAMMON · DRAGON 32
REVERSI
For the DRAGON 32
REVERSI · DRAGON 32
INVADER CUBE
INVADER CUBE · DRAGON 32
DOMINOES
DOMINOES · DRAGON 32

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REVERSI

At last Reversi running on your Dragon 32 or 64. 2 levels of play full instructions and computer demonstration for beginners.

INVADER CUBE

As well as being one of the best games of skill written for the Dragon 32 and 64 it also has some of the best pure machine code graphics we have ever seen.

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DOMINOES	£5.95 ☐	☐
INVADER CUBE	£5.95 ☐	☐
MIND GAMES COMPENDIUM	£19.95 ☐	☐

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USER CLUB NEWS

I realise all has been quiet on the Dragon Data Ltd front for a while now but this month we are looking to change that. One proposal has been organised tours of the factory Many of you wish to see how we operate and this would be an ideal opportunity We also plan to open our shop facility at the end of the tour so you can buy all those goodies you are having difficulty obtaining from the dealers Anyone interested please contact me, or Kevin Stephens on 0656 744700 for further details

Good news on the software front too, we are now offering 10% discount on most of our software products to those clubs who have contacted me Special 'Club order forms will be issued shortly If you have not as yet sent me your details and want to take part in this scheme put pen to paper with details of your club

I hope that you now feel that things are moving in the right direction Keep the letters flowing in with news on your clubs

PEN PALS

Mr Fred Belfield would like to start up a Pen Pal Club and anyone interested should contact him at St Stour Hill Quarry Bank Brierley Hill West Midlands DY5 2AT

CLUB LIST ADDITIONS

ENGLAND

Hants
Contact Mr Adnan May
Portsea Island Co-op.
69/99 Fratton Road
Portsmouth

Hants
Romsey Area Dragon User Group has regular meetings and a newsletter For details please send SAE to
Ashley Adamson
St Elmo
Slab Lane
West Wellow
Romsey SO5 0BY
or 'phone Romsey 23041

Herts
Contact Paul Kennedy
The Herts & Essex Dragon Owners Club
46 Cheyne Close
Ware
Herts
Paul is looking for new members in his area club membership is modest at present with 14 members on a good day

Lancs.
Contact Steve Melrose
4 Kempton Avenue
Blackpool FY3 9HS
Steve wants to start up a club in the Blackpool/Fylde area

London
Philip Firth
Time & Talents Youth Clubs
Community Centre
The Old Mortuary,
St Mary Church Street
Rotherhythe
London SE16
This is basically a youth club but they have got two Dragons A registered charity aimed to help 11-18 year olds I am sure that offers of help will be welcomed

Manchester
Master John Edwards,
50 Biddall Drive
Baguley M23 8PF
John is an enthusiastic 14-year old who would like to start a club for the Greater Manchester area You may contact him by telephone but please ensure that you phone ONLY between 5pm and 7pm (Tel No 061 998 4439)

Middlesex
68 Micro Group
41 Pebworth Road
Harrow
Middx. HA1 3UD
This club will be of more interest to the serious programmers They cover aspects of various 68 series micros and have a bi-monthly newsletter including a page for Dragon users Membership is £6 per annum

Surrey
P R Young
(Dragon Computer Club)
Flat 1,
3 St. Johns Road
Earlswood
Redhill RH1 6HF
Only local members required as a start New club with limited free membership, monthly newsletter etc

WALES

Bridgend
Mr Bonfield
3 The Glen
Daleside
Bryncethin CF32 9LX
Mr Bonfield is the chairman of the Bridgend & District Micro-Computer Club which meets every Wednesday at 7pm at the Aberkenfig Miners Welfare Hall You may write to Mr Bonfield but he cannot guarantee a reply to every letter

Cardiff
Hywel Francis
8 Azalea Close
Cyncoed
Cardiff
Hywel Francis would like to extend an open invitation to anyone interested in a club in the Cardiff area You may contact Hywel direct or leave your name and address at Steve's Computer Company, Castle Arcade Cardiff

OVERSEAS

I have had a letter from a user in Thailand who would like to know if there are any other users out there If you are in Thailand please contact me and I can put you in touch

Cathy Hyde.

READERS' CONTRIBUTIONS

The first contribution this month is from Mrs Pam D Arcy for Pamcomms Ltd 21 Wycombe Lane Wooburn Green High Wycombe Bucks who has been kind enough to prepare an additional information sheet on Pixel Editor This applies to the Multi-Coloured Print Routine and the sheet is printed below

Technical Appendix B (Multi-colour print routine)
Having experienced problems in trying to use MCPR (particularly when varying the character set size) the following information has been discerned and may be of use to anyone else experiencing similar difficulties

MCPR parameter area layout (15 byte area commencing at address "A+2" (p 26) or "A1+2" (p 19)

Locn	Other refs	pages	Description of content	Value set to at load
A+2	A1+2,DX	19,20, 24,28	X co-ordinate (theoretical range 0-255)	120
A+3	A1+3,DY	19 20, 24 28	Y co-ordinate (theoretical range 0-191)	0
A+4,+6	A1+4,+6, & VPT	19,28, 29	Address of VARPTR descriptor	$38CF
A+6,+7	SBP	29	Grid character set base address	(g page 5)$1E00
A+8	GL	29	Grid character set height (=rows)	8
A+9	GN	29	Grid character set width in PMODE3 addr elements	6
A+10	—	—	Number of characters across the grid (i e integer of 128/GN as when Pixel editing)	21
A+11	—(RSP?)	—	Required graphics display line spacing (rows)	12
A+12	—	—	Reqd graph display char spacing graph (PMDDE3 el *2)	12
A+13	A1+13	19,20, 25,29	End of line character (not the freq mentioned "<" but shift& ↑)	$5F
A+14	—	—	"Normal" foreground colour for the character set (=internal code=Pixel Ed code–1) if the colour for the current PMODE3 element being displayed is this, it uses current Basic foreground ($B2) unless colour switch has been requested (A+16)	2 (blue /magenta)
A+15	—	—	"Normal" background colour of the char set when created(internal as above) If the colour of the current PMODE3 element being displayed is this, It uses the current Basic background colour($B3)	1 (yellow /buff)
A+16	—	19,25, 29,31	Colour switch code	@ ($40)

A parameter DBP (p26) is mentioned I think that the relevant reference should be to locations $BA $BB (base address of current graphics page)
Also when using Pixel Editor should the background colour selected be colour code 4 as the grid lines are in that colour regardless the system may appear to be "hanging" particularly if a large grid size has been selected) but it is in fact initialising the screen without you being able to see it doing so and patience is eventually rewarded by the "cursor" appearing

The competition to draw 'the star in the east' produced some very good entries and we wish we had space to print more than one Our winning entry from Graham Bell exploits the LINE command to produce a star with a graceful and symmetric shape

```
5  REM STAR --- GRAHAM BELL
10  PMDDE 4,1 SCREEN 1,1 PCLS 0 COLDR 1,0
20  B=84 C=128 D=76
30  FDR A=44 TD 128 STEP 4
40  LINE (A,B)-(C,D),PSET D=D-4
    IF D<0 THEN D=0
50  NEXT A
60  D=76
70  FOR A=212 TO 128 STEP -4
80  LINE(A,B)-(C,D),PSET D=D-4
    IF D<0 THEN D=0
90  NEXT A
100  B=84 C=128 D=92
110  FOR A=44 TD 128 STEP 4
```

```
120  LINE(A,B)-(C,D),PSET D=D+4:
     IF D>188 THEN D=188
130  NEXT A
140  D=92
150  FOR A=212 TO 128 STEP -4
160  LINE(A,B)-(C,D),PSET D=D+4:
     IF D>188 THEN D=188
170  NEXT A
180  CIRCLE (128,82),50
190  PLAY "O3L2T10EDL1 CL2DEFL1GGL2
     ABL1O4CD3BAGGL2ABL1D4CD3BAGAB
     O4CD3GFEEL2EDL1 CL2DEFL1GGL
     2ABL1D4CD3BAGGL2ABL1D4CO3BAGABO4
     CO3GFEEL2EDL1 CL2DEFL1GGL2O4CD3B
     L1AAAL1GL1 GL1D4CD3BAGABO4CD3GFEE"
200  FOR V=1 TD 1000 NEXT V GDTO 190
```

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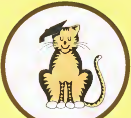

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GEC DRAGON

DRAGDN DATA AND GEC

GEC at Stoke Poges

The announcement that GEC had taken over the sales and marketing of Dragon computers and software from 1st February 1984 has opened up a completely new field for both operations

For Dragon it means that the resources and reputation of Britain's biggest name in the field of electronics and electrical equipment of all kinds has been put behind our company's business

For GEC a company concerned with the marketing of consumer electrical and electronic leisure and entertainment products, it adds the range of Dragon computers and software and extends the outlets from which they will become available With new and exciting products planned for the year access to more and more customers can only mean good news

Let's take a look at the company with whom Dragon has been allied

Quite literally GEC's products and expertise range from the depths of space to the depths of the Earth, from giant power generating equipment to handy sized telephones from an integral role in national and international defence to fireside entertainment of TV and video

The General Electric Company plc (GEC) is Britain's biggest electronics and electrical company and ranks amongst the best in the world UK-owned and managed GEC employs 137 000 people in the UK and 41,000 overseas It has 159 000 shareholders Turnover at £5 456 million has nearly doubled in the last five years The company's financial position is extremely strong and in 1982/83 pre-tax profits reached £670 million During the same year the Company spent £206 million on capital expenditure and £530 million on research and development and engineering new products

GEC operates in a decentralised way allowing the management of its many operating units the maximum freedom to run their businesses Amongst the businesses are many famous names such as Marconi Ruston Paxman Hotpoint, Osram Express Lift and W & T Avery

GEC is Britain's largest exporter of capital goods and last year shipped to customers overseas equipment worth £1 142 million

Dragon Chief Executive and Managing Director Mr Brian Moore speaking about the GEC involvement said, "We are very excited about the prospect of integrating our range with the well established consumer electronic products marketed by GEC The whole field of consumer electronics is growing at a tremendous pace Our Dragon products have been very successful we achieved record sales for our current home computers — and we have new products coming on stream which we expect to do equally well These new products will strengthen our position in the home computer market as well as moving us into the accelerated growth area of professional and small business usage"

Mr Ron Bosanko

Mr Ron Bosanko Chairman GEC McMichael said "This marketing arrangement with Dragon Data following so quickly on the acquisition of the Ayr Viewdata business significantly strengthens our position in the fast growing home electronics marketplace" This relationship between GEC and Dragon will enable us to further strengthen our product range and utilise the skills and resources of both companies to the full

Dragon Data believe that this arrangement with GEC will lead to a bigger and better service for customers, but don't forget that Dragon's Customer Support Department will continue to help and advise you in any way possible

NEW SOFTWARE FOR THE DRAGON

SPRITE MAGIC
Sprite Magic is quite simply the best Dragon utility available on the market today. Merlin Micro Systems have accomplished the seemingly impossible by giving the Dragon Sprite the ability to use graphics. Sprites (for those who have been on another planet for the last year) are independent graphic objects that can be put into motion by a single command and return a special value when hit.

There are 41 new commands which form an extension to the Microsoft Basic supplied with your Dragon computer and can be used within a Basic program. There are more features within this package than those supplied by some built-in sprite routines. There is, for example, an excellent feature called MAZEON which enables you to construct a maze around which your sprites must travel; these sprites can be made to chase or flee from the user's sprite. Do I hear the title of this game being whispered in the background?

The documentation is quite bulky so don't expect to be using Sprites as soon as you purchase the package, but after carefully reading the commands section you should be ready to experiment on your own. If you cannot wait that long then there are seven Demonstration programs on this tape several of which could have made games in their own right. A listing of this will give great insight into the techniques of using Sprites.

There is now no need for those amongst you, who are unfamiliar with machine code, to produce lifeless games. Now with this package and a few lines of Basic, Pac Man and Frogger will soon be flashing across your screen.

Sprite Magic is available now on mail order from Dragon Data — see separate insert

SPRITES FOR THE DRAGON

- **Up to 128 non-destructive sprites**
- **Automatic animation**
- **Automatic maze-running mode**
- **Text in all modes.**
- **Re-definable character set.**
- **Enhanced sound facilities**
- **Comprehensive manual**
- **Size single pixel to 1600 pixels**
- **Automatic joystick/keyboard control**
- **Collision detection**
- **True lower case ASCII**
- **Auto-repeat keyboard**
- **Dozens of powerful new commands**
- **Six free demonstrated programs**

Some time ago, we decided to add text printing facilities to the Dragon's graphics screens. Although it took three weeks of hard work we did it, for all five PMODES. We made the characters re-definable but we did not call them sprites because they are not, they're re-definable characters. Then we decided to add some sound effects and user-definable sounds. After another week or so, we had done that as well.

Next, we thought we would give the Dragon some sprites. We required multi-coloured sprites of any reasonable size or shape and we wanted to be able to move them without obliterating whatever else might be on the screen. We quite fancied being able to control sprites from the keyboard or joysticks with just a single command and we thought it would be nice to be able to fire sprites with the joystick buttons. No sprites system worth its salt would ignore collisions, we thought, so we would have to have collision as well. Also, we wanted the sprites to be fast, versatile and easy to use, with lots of functions so that the control program would know where all the sprites were and what they were doing. Another brainwave was to include an automatic maze-running feature where all the sprites chase (or run away from) a particular sprite, so that it would be easy to write THAT kind of program. Then we thought we would like to have easy animation, preferably looked after automatically by the sprite handling system. Finally, just to make the whole idea totally impractical, it would have to be driven entirely from Basic, without any tedious Peeking and Poking.

We did it. It took months, but we did it. The author of the two top-selling Dragon games in a recent best-sellers list has described Sprite Magic as the best piece of software he has ever seen. P.C. Weekly said "excellent" and "superb". Modesty forbids, but we think it's pretty good too.

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DRAGON ANSWERS BACK

Question
Can you tell me if it is possible to load a number of short programmes from tape and then to merge them without losing them?

Answer
It is possible using a BASIC routine we have available Unfortunately, this routine is too long to be listed here, should you require further details please send a SAE to our Customer Support Department stating what you require

Question
I have a Dragon 64 computer and I wish to download via RS232 a program to my Dragon from a large machine which also has an RS232 Is this possible without using specialist software?

Answer
This is possible using the following routine

```
10  ' TO DOWNLOAD A PROGRAM FROM
    ANOTHER COMPUTER SELECT SERIAL
    OUTPUT ON THE MASTER COMPUTER AND
    LIST PROGRAM TO SERIAL PRINTER THEN -
20  POKE&HF4BF,&H2A POKE&HF4C0,&H12
25  POKE&HF4C1,&12 REM ONTO DRAGON 64
30  ' THE PROGRAM WILL APPEAR ON THE
    DRAGON SCREEN AND WILL BE CRUNCHED
40  ' ONCE LOADED PRESS RESET AND LIST
    PROGRAM
```

This routine configures the Dragon to accept input from the RS232 and use it as it would any keyboard input

Question
I would find it very useful to have a hard copy of everything that my Dragon prints on the TV screen Is there a routine to direct the output to printer and screen simultaneously?

Answer
The following routine should achieve the desired results

```
POKE &H168,&H80
POKE &H169,&H0F
POKE &H167,&H7E
To CANCEL, POKE &H167,&H39
To RE-START, POKE &H167,&H7E
```

Question
Sometimes when typing in a listing from a book or magazine I have come across a pound sign However this symbol is not on my Dragon's keyboard and I can find no way of getting it on the screen Can you help?

Answer
The confusion arises because printers are not entirely standardised in the way they interpret character codes The Dragon assigns code 35 to the "#" symbol On many printers this code is allotted to the "£" sign

If you encounter a "£" sign substituting a "#" will allow the program to run correctly

Question
I have read that the Dragon 64 incorporates an auto-repeat facility for the keyboard Is there any way that I can implement an auto-repeat on my Dragon 32?

Answer
All that is needed is a subroutine to set the keyboard rollover table every time an auto-repeat is required The rollover table is stored in locations &H150 to &H159 and can be set by POKEing each location with &HFF Try running this short BASIC program as a demonstration

```
10  CLS
20  PRINT "HOLD DOWN ANY KEY"
30  FOR I =0 to 9
40  POKE &H150 + I , &HFF
50  NEXT I
60  A$=INKEY$ PRINT A$,
70  GOTO 30
```

Question
I am interested in using a light pen with my computer, but I am not exactly sure of what they do Please explain their function and tell me where I can get hold of one for the Dragon

Answer
A light pen is a device used to assess the intensity of light emitted by any point on the TV (or monitor) screen It is connected to the computer via one of the joystick ports If a light pen is pointed at a particular point on the screen the computer is able to calculate which spot on the screen is being referred to Thus with suitable software, they can be used to choose between options displayed by the computer, or even to draw directly on the screen

We ourselves stock a versatile light pen which retails at £9 95 and is available through mail order

Question
Although I find that most Dragon 32 software runs perfectly on my Dragon 64 I have had some difficulties with 'Breakout' and 'Middle Kingdom' Is there anything I can do to make them run as they should?

Answer
Both programs will run perfectly if you make these simple modifications
Breakout Load Game Once loaded type

```
POKE &H1E28,&HFA
EXEC
```

'Middle Kingdom' Load Game Once loaded type

```
POKE &H1E0D,&HF6
POKE &H5E0B,&HF8
```

Ambersoft COMPUTERS & SOFTWARE

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And All Because	B & H	6.04	Go for Broke	Omega	6.09
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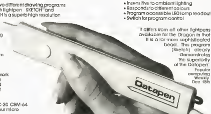

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MATHEMATICAL SKETCH PAD

This is for the many Dragon users who need to sketch graphs 'O' and A level mathematics students can explore the behaviour of functions with this program irrespective of whether they can program or not.

BASIC allows you to define one-line functions The statement

```
DEF FNX(X)=2*X*X+3*X+1
```

allows future lines of program to refer to (for example) FNX(2) which would equal 2*2*2+3*2+1=15 To write an all purpose program allowing users to specify such a function either the full line must be written by the user or we need an effective way of creating such a line from an INPUT statement

To do this we need to know how such lines are stored in the RAM of your Dragon A short program is sufficient to unravel the secret

```
10  ST=256*PEEK(186)+PEEK(167)
20  REMXXXXXX
30  FOR I=ST  TO ST+20 PRINT PEEK(I), NEXT
```

Line 10 finds the position in RAM of the next executable statement in this case line 20 and line 30 produces the numbers 0 36 42 0 20 130 88 88 88 88 88 88 0 36 76 0 30 128 These numbers can be interpreted as follows

The two bytes 38 42 determine the position in RAM of the next line 0 20 specify the line number (20 in this case) 130 is the "token" for "REM" followed by 6 88's (88 is the ASCII code for "X"), and the end of the line is marked by a zero

The most important aspect of this is the notion of "tokens" representing the key words of the BASIC language If we replace line 20 with

```
20  DEF FN(X)=X+X-X*X/X ↑ X
```

and run the program again we find the following tokens DEF(152) FN(190) =(203) +(195) −(196) *(197) / (198) and ↑(199)

With this background information we can begin to see how to use the characters of a string F$ to create the appropriate line of program — scan each character to see whether it should be a token and if so POKE the appropriate token into the program line otherwise POKE the ASCII value instead

In the following program, subroutine 130 does precisely this together with the necessary tokens for

```
DEF FNX(X)=
```

and to finish the definition the characters 58 ((and 130 (REM) are POKEd (REM is a useful statement to end the function because the remainder of the line is then ignored)

```
10  CLEAR500,13000
20  ST=256*PEEK(166)+PEEK(167)+13 GOTO70
30  REMXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXXXXXXX
40  DEF FNU(X)=10+230*(X-AX)/(BX-AX)
50  DEF FNV(Y)=180-170*(Y-AY)/(BY-AY)
60  RETURN
70  DIM F(255) INPUT"ENTER YOUR FUNCTION",
    F$ G$=F$
80  GOSUB 310 GOSUB30
90  INPUT"ENTER RANGE OF X VALUES XMIN TO
    XMAX",AX BX
100  INPUT"ENTER THE NUMBER OF X
     VALUES";NX
110  IX=(BX-AX)/NX FOR I=0 TO NX
120  X=AX+IX*I F(I)=FNX(X) IF I=0 THEN
     AY=F(I) BY=F(I) NEXTI
130  IF F(I)<AY THEN AY=F(I)
140  IF F(I)>BY THEN BY=F(I)
150  S$=STRING$(LEN(G$),32)
     FT$="WHEN X= ####.##  %"
     +S$+"%=#### ###"
160  PRINT USING FT$ X G$,F(I)
170  NEXTI
180  PRINT"RANGE OF Y-VALUES IS
     FROM"AY,"TO",BY
190  PRINT"PRESS ANY KEY FOR THE GRAPH"
200  IF INKEY$="" THEN 200
210  PMODE4,1 SCREEN1,1 COLOR0,1 PCLS
220  LINE(10,10)-(240,180),PSET,B
230  IF AX<0 AND BX>0 THEN
     U=FNU(0) LINE(U,180)-(U,10),PSET
240  IF AY<0 AND 8Y>0 THEN
     V=FNV(0) LINE(10,V)-(240,V),PSET
250  FOR I=0 TO 10 X=10+23*( Y=10+17*(
260  LINE(X,180)-(X,185),PSET LINE(10,Y)-
     (5,Y) PSET NEXT
270  FOR I=0 TO NX X=AX+IX *
     I Y=F(I) U=FNU(X) V=FNV(Y)
280  IF I=0 THEN LINE(U,V)-(U,V),PSET
290  LINE-(U,V),PSET NEXTI
300  GOTO300
310  C$="+-*/↑=<>" FOR I=1 TO 8 READ
     N(I) NEXT
320  DATA 195,196 197,198 199,202,203,204
330  DATA 152,32 190 88,40 88 41,203
340  FOR I=0 TO 7 READ X POKEST+I,X NEXT
350  FOR I=1 TO LEN(F$) X$=MID$(F$,I,1)
360  X=INSTR(1 C$,X$)
370  IF X>0 THEN POKE ST+7+I,N(X) NEXT ELSE
     POKEST+7+I,ASC(X$) NEXT
380  POKEST+7+I,58 POKEST+8+I,130 RETURN
```

As it stands standard functions like SIN COS etc cannot be used since no provision has been made to translate these into tokens Nevertheless a wide range of graphs can be sketched using this program All you need do is to input the required function together with the range of x values you want the graph to cover and the number of points (up to 255) you want calculated in this range The program lists the values of the function at the appropriate points (you can halt the scroll using SHIFT[@]) and gives the corresponding range of function values When a key is pressed the graph is drawn Where the range of x or y values includes 0 an axis is drawn

The standard functions are represented by two bytes — FF (255) followed by 127+n, where n is the number of the function in the table of standard functions which starts at address $81CA in ROM For example SIN is 255 followed by 136 because SIN is the seventh function in the table To see a list of the functions and their corresponding numbers run the following program

```
10 J=128 I=&H81CA
20 PRINTJ, J=J+1
30 X=PEEK(I) I=I+1 IFX>128THEN50
40 PRINTCHR$(X), GOTO30
50 PRINTCHR$(X-128)
60 IFI<&H8250 THEN20
```

To include these functions we need a routine which analyses the string F$ and searches the table to match sequences of characters with the standard function words This can be done in BASIC but the response time is rather poor The following machine-code program does the job a lot faster

```
   NLETS  EQU  RETURN+1
   NWORDSEQU  RETURN+2
   LENPTR EQU  RETURN+3
1  START  LDX  $1B                9E1B
2         LDD  #$4680 ,F$         CC4680
3  SEARCH CMPD ,X++               10A381
4         BEO  FOUND              2704
5         LEAX 5,X                3005
6         BRA  SEARCH             20F7
7  FOUND  STX  LENPTR,PCR         AF8D0099
8         LDB  ,X++               E681
9         LBEO RETURN,LENGTH0     10270090
10        STB  NLETS,PCR          E78D008D
11        LDY  ,X                 10AE84
12 LIST   LDX  #$81CA             8E81CA
13        LDA  #34                8622
14        STA  NWORDS,PCR         A78D0082
15 FIRST  TFR  Y,U                1F23
16        LDA  ,Y+                A6A0
17        DEC  NLETS,PCR          6A8C7A
18        BEO  RETURN             2777
19        CMPA #$41               8141
20        BLO  FIRST              25F3
21        CMPA #$5A               815A
22        BHI  FIRST              22EF
23 CHECK  CMPA ,X+                A180
24        BEO  MATCH              270D
25 CHECK2 DEC  NWORDS,PCR         6A8C6A
26        BEO  NOFUNC             2750
27 SKIP   LDB  ,X+                E680
28        CMPB #$80               C180
29        BLS  SKIP               23FA
30        BRA  CHECK              20FF
31 MATCH  LDA  ,Y+                A6A0
32        CMPA ,X+                A180
33        BEO  MATCH              27FA
34        ORA  #$80               8A80
35        CMPA ,-X                A182
36        BEO  FOUND2             2706
37        TFR  U,Y                1F32
38        LDA  ,Y+                A6A0
39        BRA  CHECK2             20E1
40 FOUND2 STA  ,-Y                A7A2
41        TFR  U,Y                1F32
42        LDA  #$FF               86FF
43        STA  ,Y+                A7A0
44        LDA  #162               86A2
45        SUBA NWORDS PCR         A08C41
46        STA  ,Y+                A7A0
47        DEC  NLETS,PCR          6A8C3B
48        LDB  (LENPTR),PCR       E69C3A
49        TFR  Y,U                1F23
50 LOOP1  LDA  ,Y+                A6A0
51        DECB                    5A
52        DEC  NLETS,PCR          6A8C30
53        CMPA ,X                 A184
54        BNE  LOOP1              26F6
55        STB  (LENPTR),PCR       E79C28
56        LDB  NLETS,PCR          E68C26
57        BEO  RETURN             2723
58        PSHS U                  3440
59 LOOP2  LDA  ,Y+                A6A0
60        STA  ,U+                A7C0
61        DECB                    5A
62        BNE  LOOP2              26F9
63        PULS Y                  3520
64        BRA  FIRST              2098
65 NOFUNC LDA  ,Y+                A6A0
66        CMPA #$41               8141
67        BLO  NEXT               250B
68        CMPA #$5A               815A
69        BHI  NEXT               2207
70        DEC  NLETS PCR          6A8C0A
71        BEO  RETURN             2707
72        BRA  NOFUNC             20EF
73 NEXT   LEAY -1,Y               313F
74        LBRA LIST               16FF77
75 RETURN RTS                     39
```

The program is written in Position Independent Code (PIC) which means that the same code will work anywhere in RAM PIC is very easy to write for the 6809 and will be discussed in detail in a future article For those who are using the DREAM Editor/Assembler, it is convenient to assemble the code starting at address 13001 — this is available when DREAM is located at the top of RAM and is not needed by the BASIC program Before loading DREAM type CLEAR 100 13000 The program will then automatically assemble from byte 13001

The code can, of course by POKEd into RAM using a BASIC program — simply put the sequence of bytes 9E 1B CC 46 80 10, A3 81 into data statements and run a program to POKE them in starting at any convenient position above 13000

Lines 1-6 search the simple variable space (indicated by the contents of $1B/C) for F$ Line 8 loads the B register with the "length" of F$ and line 11 loads Y with the address of the first byte of F$ Line 12 loads X with the address of the Function Table There are 34 function words (line 13)

Lines 15-30 check for a first letter "match" between the characters of F$ and the table If one is found lines 31-39 check the rest of the word Lines 31-64 replace the character string with the corresponding token and close up the resulting gap The final part of the program deals with strings of letters which are not functions (i e variables)

Two techniques are used which may be new to some readers The brackets in lines 46 and 55 indicate "indirect addressing" For some assemblers these should be typed as square brackets (not in DREAM) Lines 58 and 63 are Stack operations — the contents of register U are PUSHED on to the System Stack and later PULLED back into register Y Both User and System Stacks may be used for this sort of temporary storage of values and a sound understanding of how the Stacks work is invaluable for the serious machine-code programmer These techniques will also be discussed in a future article

(Continued on page 17)

YOUNG USER'S PAGES

PLEASE REMEMBER THIS DRAGON

As the programs you write become more interesting you see how much you need to be able to put special information into your program — the sort of information which enables the same program to do different things This sort of information is often described as DATA (singular-datum) This time we are going to look at some of the different ways we can get data into the Dragon

Most people enjoy the sort of program which requires you to respond even if only to enter your name Both computer games and arithmetic tests require a response This type of program is called INTERACTIVE

Can you teach Dragon your name? One way of getting your name into Dragon's memory is to use the INPUT command After the command you must give a variable name so that whatever is put in can be stored and recalled Here is an example

```
10 CLS:INPUT NAME$
20 CLS:PRINT "HELLO  ",NAME$
```

When you RUN this tiny program you see a question mark on the screen When you type your name and press <ENTER> your name is put into the variable NAME$ The next line clears the screen again and prints HELLO followed by your name Of course your name is made up of letters and must be stored in a string variable which has a $-sign after it What if your Dragon wants to know more about you?

```
10 CLS:INPUT NAME$,AGE
20 CLS:PRINT NAME$," YOU ARE ",AGE," YEARS
    OLD "
```

This time Dragon expects two pieces of information, one string and one number Try entering just your name Dragon waits for more You are supposed to enter your age as a number See what happens if you enter it as a string

```
?CHRIS
??TWELVE
?REDO
CHRIS,12
CHRIS YOU ARE 12 YEARS OLD
OK
```

When you see REDO you must re-enter the whole input

When you want to enter something during a program your program should indicate what to enter A question mark on its own looks rather demanding and rude The INPUT command lets us do this easily The prompt is written in quotes and is followed by a semi-colon Put in a new line 10

```
10 CLS:INPUT "NAME,AGE ";NAME$,AGE
```

Only one prompt is allowed in any one line so NAME and AGE must come in the same prompt

Suppose you wanted to enter an address

```
30 INPUT"ADDRESS",ADDRESS$
40 PRINT ADDRESS$
RUN 30
```

```
ADDRESS? 32,RAM STREET
EXTRA IGNORED
32
```

All that is stored in ADDRESS$ is 32 The computer took the comma in the address as separating two variables We can overcome this by using LINEINPUT Change line 30

```
30 LINEINPUT ADDRESS$
RUN 30
32,RAM STREET
32,RAM STREET
```

Now the whole address is in ADDRESS$ But there is a snag — there is not even a question mark to remind us to enter something You can add a prompt (with question mark) as with INPUT or supply your own prompt using PRINT

```
25 PRINT "ADDRESS ? "
```

Now type RUN25 You see we have our prompt on one line and the input on the next. To get them on the same line you need a semi-colon at the end of line 25 In fact we can place the prompt and the response wherever we want on the screen by using PRINT@ Here is a now line 25

```
25 CLS:PRINT@100,"ADDRESS ? "; LINEINPUT
    ADDRESS$
```

Of course you can use this with the ordinary INPUT too Sometimes it is useful not to have the question mark for input Use LINEINPUT instead but remember you can input only one variable and it must be a string If you want a number put it into a string first and convert it using VAL, e g

```
50 PRINT"WHAT IS THE NEXT NUMBER 1 2 4 8 ";
60 LINEINPUT N$:N=VAL(N$)
70 IF N=16 THEN PRINT"RIGHT"
RUN 50
```

Now this is all very well but when we use either of the INPUT commands that input is printed on the print screen If we have a display on the high resolution screen or on the print screen which we want to alter without printing we can use INKEY$ This notes which is the next key pressed but doesn't print anything We can make a very useful subroutine with this Type NEW first to clear away the old program

```
NEW
1000 K$=INKEY$:IF K$="" THEN 1000 ELSE
      RETURN
```

When your program meets this subroutine it puts into K$ the next value of INKEY$ If there is nothing there it goes back and tries again If a key has been hit it returns to the program and that key is shown in K$ Here is a demonstration

```
10 PMODE3 1 SCREEN1,1 PCLS
20 GOSUB1000 N=VAL(K$)
30 IF N<9 AND N>0 THEN COLOR N
   DRAW E20F20G20H20"
40 GOTO20
1000 K$=INKEY$ IF K$-""THEN 1000 ELSE RETURN
```

When you run this program you will see a blank screen When you press a number between 1 and 8 a square appears You can change its colour by pressing a different number Press <BREAK> to stop

You can still print letters on the screen The next little program uses the same subroutine and prints whatever you type both forwards and backwards! Press <ENTER> to stop

```
10 CLS
20 GOSUB1000 IF K$=CHR$(13)THEN END
30 PRINT@32+N,K$ PRINT@479-N,K$,
40 N =N+1 GOTO20
1000 K$=INKEY$ IF K$=""THEN 1000 ELSE
      RETURN
```

Subroutines are very useful when you want to do the same sort of thing many times Perhaps you want to draw lots of circles You might have a program like this

```
10 PMODE3,1 SCREEN1.0 PCLS
20 X=100 Y-50 R=30 C-2 H=1.S=1 F=0
30 GOSUB1020 GOSUB1000
90 END
1000 K$=INKEY$ IF K$= '" THEN 1000 ELSE
      RETURN
1020 CIRCLE (X Y),R,C,H,S,F RETURN
```

When you RUN this, you will see a circle When you change R you will see a circle with a different radius Let s do this with a new line

```
40 R-50 GOSUB1020 GOSUB1000
```

Pressing any key sends the program to the next stage First one circle then the next

If we want to do a lot of circles we can READ our bata (the values of X Y R etc) from DATA statements Simply change lines 20 and 40 and add the data line

```
20 READ X,Y,R,C,H,S,F
40 READ R GOSUB1020 GOSUB1000
100 DATA 100,50,30 2,1,1,0,50
```

We can easily add more lines like line 40

In the following program we have used this technique for the whole program The subroutines themselves read the data they require

```
0 REM EASTER CARD 1
10 PMODE3 1 SCREEN1,0 PCLS
20 GOSUB1010 GOSUB1000
30 PAINT(125 100) 2 4
40 GOSUB1030 GOSUB1000
50 GOSUB1010 GOSUB1010
60 PAINT(100,50),1 4 GOSUB1000
70 GOSUB1010 GOSUB1010 GOSUB1000
80 GOSUB1030 GOSUB1000
90 READ A$ GOSUB1040
100 DATA 125 100 50,4,1 2,0,1
110 DATA"BL52D5E20F30E18F20E8"
120 DATA 125,100 50,1,1 2, 5,0
130 DATA 125,100,40,4,1 4, 54,0 05
140 DATA 115 75,4,4 1,0,1
150 DATA 135 75 4 4 1 0,1
160 DATA "BM124 95 NE8H8UF8E8"
170 DATA "BM124,79 NG8NF8"
180 DATA T100O5CDCD
1000 K$=INKEY$ IF K$="" THEN 1000 ELSE
      RETURN
1010 READ X,Y R,C,H S,F
1020 CIRCLE(X,Y),R C,H,S,F RETURN
1030 READ A$ DRAWA$ RETURN
1040 READ T$
1050 DRAW "C4"+A$ PLAY T$ GOSUB1000
     DRAW"C2"+A$ GOSUB1000 GOTO1050
```

Just keep pressing the space bar To continue an Easter theme we have another program which looks almost the same but has different data The special thing here is that the data tell which subroutine to go to next

These programs are easy to build up but rather difficult to follow once you've forgotten what you wrote

```
0 REM EASTER CARD 2
10 PMODE3,1 SCREEN1,0 PCLS3
20 FOR I=1 TO 20 READ N
30 ON N GOSUB 1000,1010,1030,1040,1060
40 NEXT END
100 DATA 2 125,130 40,4,1 1,0,1
110 DATA 3,"BG72R25BD10R80BU5R30"
120 DATA 2,125,80 30,4,1,1,0
130 DATA 2 115,50,10,4,4,1,0
140 DATA 2,135,50,10,4,4,1,0
150 DATA 5 0,0,1 4
160 DATA 5,125,100,2,1
170 DATA 2,115,75 4,4,1,0,1
180 DATA 2,135 75 4 4 1,0,1
190 DATA 3,"8M123 90,U4R2D4R2U4"
200 DATA 3,"BM123,90 U2BR4D2"
210 DATA 4,T9O1BC
1000 K$=INKEY$ IF K$="" THEN 1000 ELSE
      RETURN
1010 READ X Y,R,C,H,S,F
1020 CIRCLE(X Y),R C H S,F RETURN
1030 READ A$ DRAWA$ RETURN
1040 READ T$
1050 DRAW "C4"+A$ PLAY T$ DRAW"C2"+A$
     GOSUB1000 GOTO1050
1060 READ U,V,P,Q PAINT(U,V),P,Q RETURN
```

Just for fun we have here a program which demonstrates INKEY$ The arrow keys control the cursor and you can make it draw in different colours with the numbers one to eight When you press the space bar it stops drawing and you can move about the screen without altering your picture You can choose a screen colour at the start or by just pressing <ENTER> you can select a grass and sky background

---

(Continued from page 15)

To integrate this code into the BASIC program just insert the following line

```
75 EXEC13001
(assuming assembly at 13001).
```

When the machine code is loaded the program will now allow the use of any of the Standard Functions

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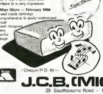
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SOFTWARE REVIEWS

For this edition of Dragon World we have concentrated on the educational programmes available for the Dragon 32 and 64 We have used two different independent sources to review the software — Mr John Fullick Youth leader of the John Pound Youth Club in Portsmouth very kindly for us reviewed Words Words Words Number Gulper and Cranky The other reviewers were two young girls Katie and Rebecca with a little help from Katie's oldest sister

The John Pound Youth Club

This was opened in March 1983 to help meet the needs of youngsters with educational learning difficulties It has a membership of over 90 with a very wide range of activities offered to the youngsters including the access to a Dragon 32 Home Computer For this reason we asked John with the help from the members of the Club to review some of our educational range of software

REVIEW

I have reviewed the three items of software in relation to their use with students designated as ESN(M) i e mildy educational sub normal aged 16-19 Their reading ages range from 6-10 years and number ages from 5-11 years years

Words, Words, Words £10 95

Is a mixture of instructional and revelatory software designed for young children to read It can be best used by the teacher and pupils working together and is at its best with smaller groups i e up to 3 pupils

The instruction manual is well written and supplies the teacher/user with an introduction containing the objectives intended skill areas covered loading procedures, use of the programme including correction procedures and a very useful dictionary of the words used

Basically the programme enables the user to build up a scene e g street house or castle by correctly spelling the names of objects presented on the screen

Once the user has chosen which scene he wants to begin his story objects begin to appear on the screen The user then has to correctly spell these The programme allows two mistakes before showing the correct spelling If all the objects are spelt correctly a reward is given — the 'scene' comes to life with some of the objects doing various things

The programme was popular with the students across the ability range and only one criticism was noted Although the graphics are good, they are not as good as the 'Hide and Seek programme from ASK which the students have used extensively The students found it difficult to recognise some of the objects e g the boy the girl the balloon and it would seem that a slight enlargement of detail would help a great deal adding to the quality of the programme

While helping the students to practice the main achievement was in getting them to use their imagination and stimulating ideas and interest for story writing

Number Gulper £10 95

Very popular with all the students because of the arcade' style of presentation and a very useful programme for students with learning difficulties because of the range of difficulty levels and the ability of the programme to drop to an easier level should the user fail to successfully complete one level

The idea of the game is quite simple, but the actual operation requires more skill than it appears at first

The user has to move a gulper around a maze-type board containing numbers that have a + – • or / sign next to them The user chooses a number between 10 and 9 999 (the lower the easier) and then the computer selects another number The user then has to use his gulper to eat the numbers required to make up the difference between the chosen number and the computer selected number As if this isn t hard enough you are racing against time as your energy store is decreasing with time and each number you gulp At the higher levels 'scramblers appear which if hit by your gulper randomly change the selected number thereby forcing the user to rethink the strategy for making the new number

The students soon found that a pencil and paper were essential for planning their routes' before starting the game

The programme also includes a Self-Test option with which the user can test how much progress is being made in using numbers It consists of ten questions varying in difficulty according to the level of the last 'gulper' game played, which are answered in the shortest possible time

A highly entertaining interactive game which while making it fun to practice number skills also involved the students in using strategy and forward thinking skills

Cranky £10 95

Another popular programme with the more able students

This one is really playing with numbers! Cranky is a pocket calculator whose circuits get damaged by rain It is the job of the player to repair the circuits by making the number patterns that have been damaged In the basic game the player can only use the numbers 3 and 5 and the + – and = signs to construct numbers but in Challenge you can choose your own two numbers to manipulate

This programme really tested the students addition and subtraction skills to the full and new techniques number patterns and relations were found Like Gulper this programme also encouraged the students to develop and explore their own strategies usually by trial and error at first

This revelatory programme was best used by students on their own with periodic supervision and was a help in giving many of the students initial confidence in discovering their own ability to successfully manipulate numbers

Summary

Most of our students are naturally turned off from literacy and number work because of their learning difficulties and the biggest advantage of the computer and educational software has been the confidence they gain in being able to 'play around' with words and numbers and to explore patterns all at their own pace without the pressure of time or a teachers patience! (The Dragon hasn t blown a fuse yet!!)

Katie and Rebecca are six years and seven years old respectively and attend Presteigne Primary School in Mid Wales They reviewed three of Dragon Data s new educational software titles for Dragon World, Facemaker, Children From Space and Shape Up Each of these titles are designed specifically to enhance one particular aspect of a childs education

REVIEW

Facemaker £10.95

This was Katie's and Rebecca's favourite program The aim of Facemaker is to draw a face by typing certain commands into the computer The girls took it in turn to draw each other and whilst finding the pictures very amusing took it quite seriously As a result they did not find it too long or boring

Some of the vocabulary had to be explained — words such as 'cleft' and 'bulbous The program did prompt certain questions such as why certain relatives wore glasses and these were discussed

The only criticism that came from the girls was that they did not understand all the words used but this problem was soon solved

Children From Space £10.95

The two girls found this considerably harder than 'Facemaker' and as a result found it tedious The main reason was that they were too young to enjoy it The program demands grammatical accuracy and is really suited for children slightly older than Katie and Rebecca

The game has four episodes in which different aspects of English are explored — correction of common spelling mistakes changing of tense order of jumbled sentences choosing the more appropriate of two words to fit into a sentence

This particular piece of software was slightly too advanced for Katie and Rebecca

Shape Up £10 95

In contrast to Children From Space 'Shape Up' was a little too easy for the girls It was very enjoyable but the girls mastered it a bit too quickly

The four games on this title are designed to introduce and familiarize children to different shapes and sizes Each game is slightly harder than the last The clever use of colour and moving graphics meant that the children's interest was kept However it was too easy for the two girls and is more ideally suited for the younger child

BRIDGE

Bridge Master with its excellent graphics and presentation makes the player feel that he is participating in a bridge game

The outstanding features are

(1) The player can elect to bid either the North or the South hand and as declarer play each of 100 bridge hands

(2) Before making his first bid he may elect to have the computer display the point count and honour trick valuation of his hand

(3) At the end of the auction the computer will, if requested, give a review of the bidding

(4) At any stage during the play of the hand the computer may be asked to remind the declarer of the contract and display the number of tricks made to date

(5) At the end of the play on each hand the computer will on request automatically re-run through the hand showing the correct bidding and play

(6) Although the operator may make any bid or play any card he chooses the computer will accept only those bids and plays that are correct The beginner therefore receives necessary instruction whenever a mistake is made and errors are not compounded At any time during the bidding or play the computer may be asked for advice and will respond with the correct solution

The solution consists of a cartridge and cassette containing 100 different hands It is a course of instruction in both bidding and play for the beginner and an entertainment and challenge for the intermediate player There are two manuals The manual of instruction contains a short Introduction to Bridge, a Summary of Opening Bids a Hand Valuation Chart a Scoring Table and a Glossary of Bridge Terms The second manual contains instruction in the form of comments on the bidding and play for each of the 100 deals

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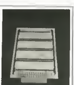

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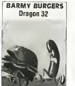

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DRAGON USER OF 1983 COMPETITION

We had no idea that Dragon owners were so inventive The entries in our 'User of the Year' competition were of such a high standard that we had to award five Dragon 64s!

Of course there had to be an overall winner and that honour goes to Tariq Mohammed a doctor at Booth Hall Childrens Hospital in Manchester He receives a Dragon 64 plus a large parcel of software

Tariq works in the Department of Paediatric Gastroenterology and he devised a program to work out the feeds for children who are fed intravenously The program also provides a print out of instructions for the pharmacy and nurses

Congratulations to Tariq and we hope he will keep up the good work with his prize

The other four winners of 64's were equally interesting and inventive John Wilkinson of Warwickshire uses a Dragon 32 to help in his work on fuel and ignition specifications at Jaguar Cars

At an Electricity Control Centre in the West Country a Dragon 32 is helping B J Parish and colleagues to display the status of the sub-station breakers Using high resolution colour graphics and the powerful inbuilt basic the Dragon outpaced very much more expensive solutions

In Cumbria a schoolteacher named Stephanie Fear uses her Dragon to write simple graphics for a partially sighted four year old pupil Stephanie reports that the pupil's concentration improves remarkably when working with the graphics which he enjoys enormously

Our final winner is Rachel Hart of Amersham Bucks who has used her Dragon 32 to help a friend to translate English books into Russian

Altogether a marvellous selection of uses and users who thoroughly deserve their prizes

The runners up who each win a Super Dragon Writer 11 cartridge are

R Callow Daventry Northants
A E Charlish Wyken Coventry
Herwig Cuypers Herenthout Belgium
A Deeley Warwick
A Farrar, Stutton Ipswich, Suffolk
P Gladwell Gorton Manchester
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We intend to feature articles on each of the competition winners in future issues of 'Dragon World

Cathy Hyde

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DRAGON 64

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Our Production Department had a problem — and an answer to that problem The problem was accessing information for management statistics — the answer was a Dragon 64K a double disk drive a printer a television screen and a little flair and imagination

The production manager Mike Lewis was constantly frustrated by the time and effort his clerical staff had to put in to provide him with the information he needed to complete various management reports So when the Dragon 64K was launched and later the OS-9 operating system was developed he saw the combination as a solution to a problem

When compiling management information and statistics the major drawback is the time it takes to access collate and update the data If the history data is however on a disk the time and resources saved can be considerable Mike Lewis had three specific areas where a suitable computerised system appeared to be the answer to the manual system his staff currently used

The first of these areas was information on the soak test racks These are used in Dragon Data to test and "burn in" the computer componentry for a specified period of time The information on the number of good and reject boards is obviously essential to the production area Using BASIC a database was established to hold daily recordings of such things as loading/unloading times Now information is immediately available and passed to Quality Control it is then incorporated in the weekly production efficiency reports

The second area which was integrated to a computerised system was the production efficiency reports Using BASIC and the manual information already established on standard hours a database was established This enables access to a file of information which when used in conjunction with daily production reports forms the basis of a daily and weekly area by area efficiency report Any area not to standard is immediately highlighted and action taken

The third area looked at was the one of software control Although the company uses a main frame computer which has a finished stock file as well as the facility for invoicing accounts a major expenditure would have been necessary to set up the type of stock control system needed for software The Dragon 64K in conjunction with OS-9 would however accomplish the same ends at a fraction of the cost

Once this was established a weekly update of production/sales for each item enabled a report to be generated indicating on-going sales and total cash value held in stock stock held on each item and those items requiring re-ordering Mike Lewis can now give other areas within the organisation the accurate information they need to perform their jods efficiently

From ideas initiated in the Production Department other departments are now evaluating possible uses within their own areas We will keep you up-dated on any further uses of Dragons within Dragon

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THIS MONTH . . .

In response to the many requests for a word-processing feature "This Month" we have reviews of the two word processing packages available from us and, as a printer is required for these packages, we are reviewing a selection of printers.

The review of printers is restricted due to space available this issue, but we hope to review other makes in future issues. If there are any particular models you would like to see reviewed, please contact us at the editorial address.

"SUPER DRAGON WRITER II"

The first word-processing package to be reviewed is 'Super Dragon Writer II'. This is priced at £39.95 and is available now. The review has been prepared by Doug Bourne of the Dragon Independent Owners Association.

The 'Super Dragon Writer II' word-processing program arrives in the now standard video box which, when opened, reveals a ROMpak and a thick manual. It is at this point that we choose our course of action. Do we plug in the ROMpak and run the program, or do we read the manual? Well, if you do like me and do the former then you very quickly find yourself reaching for the manual and, in fact, the manual tells you that the best way to learn is by reading and using the information given.

So let us start again. Plug in the ROMpak and switch on. First comes up the colourful title page. By pressing any key we enter the command mode and the display mode of 51 characters per line, 21 lines per screen. This is a big improvement over the small box that we normally see.

The command mode is as its name implies, how we tell the program what we want from it. We now decide whether we would like to alter the display mode for one of the other options. There is the low-res. 32 x 16 display which is the standard display with the standard inverse letters for lower case. The colour can be changed from green to orange. Next, the hi-res displays which are 51 x 21, 51 x 24, 64 x 21, 64 x 24, 85 x 21 and 85 x 24. Also in the 64 displays you can choose narrow or wide characters and, as in the low-res display, the colour can be changed between green or white and inverse. In all the hi-res modes you get true lower case with descenders.

Pressing "BREAK" puts you into the text entry mode in which you can write your letters or whatever. If you make a mistake, you just position the cursor using the arrow keys and type over to correct the error. You can delete characters using the command (CLEAR) key and D.

When you have your block of text, you will want to see if it looks correct before printing so command P gives you the option of printing or window. Asking for window (W) shows how the text will look. Here I found that if at this time I entered the 85 column mode, the text showed better. You can now see if you need to move anything around, e.g. change the position of one paragraph for another. This is accomplished using BLOCK MOVE and BLOCK DELETE. If you are satisfied with everything, then all that there remains to do is to print the text. Pressing the command (CLEAR) key then P, you will be asked whether you want print or window. Press P again and away it goes.

There is much more it can do, too much to mention here. In fact, the price of the program belies its capabilities. It has features not found in more expensive programs. It can be used with any printer with minor adjustment to take into account differences in their control code and any special function they might have.

There are cheaper cassette-based programs on the market and indeed more expensive ones but for ease of use with the ROMpak and its ample facilities, not to mention its price tag, this must make 'Super Dragon Writer II' the most useful program to come from Dragon Data.

"STYLOGRAPH"

For those of you with Dragon 64s and disk drives, this word-processing package, which runs under OS-9, may be of interest. Priced at £79.95, we feel that it is an excellent buy when compared to other similar packages. Please note that you would require the OS-9 system disk to run "Stylograph". "This Month's" review is by Duncan Smeed, whose name may be familiar to you as co-author of "Inside the Dragon".

Stylograph, Mailmerge and Spellcheck is one of the new titles now available in Dragon Data's Professional Software series for OS-9 operating system on the Dragon 64. The book-style pack contains the floppy disk, a comprehensive manual, a command summary reference card and a keyboard function reference chart.

Stylograph is a "professional" word-processor providing facilities normally only found in word-processors costing many times its price. It makes use of the 51 by 24 text screen mode (by using the OS-9's "go51" command) for upper and lower case characters and normal terminal emulation. Stylograph's SUPERVISOR mode presents the user with a menu of possible options available such as "EDIT", "PRINT", "SAVE AND RETURN", etc. The "EDIT" option transfers Sytlograph into its ESCAPE mode, where most of the editing of existing text takes place. The user can scroll through the text on a character, line, or page basis or a "search" string can be used to specify the position within the text.

Commands exist to replace, move, duplicate and delete text and to perform single character overwrite, insert and delete.

The INSERT mode is the one where you can type in the text just as you would on a typewriter and formatting is carried out during input on a "what you see is what you get" basis. In other words, the text is laid out on the screen as it will appear in the final print-out. The formatting commands are too numerous to describe in detail here but they do control things like the page length, header/footer definitions, line spacing, justification, line lengths, indentation, character spacing, paragraph settings, printer control parameters, and whether characters will be underlined, overlined, subscripted, superscripted, or emboldened.

About six full pages of A4 text can be held in the RAM text area. However, text files larger than this can be manipulated by storing part of the text on disk and/or by using the Mail Merge package.

Mail Merge has been designed to complement Stylograph in three ways. Firstly it provides the facility to merge together a number of small text files when printing. Secondly it allows a file of, say, names and addresses to be merged with a "standard" text file so that letters, etc., can be "personalised" when printed. Thirdly this package can be used to print multiple copies of the same file. In all these cases Mail Merge can take advantage of OS-9's multi-tasking capabilities and be run as a background task. For example, a text file can be typed while a long document is being printed.

The final package of the trio, Spellcheck, is used to check each word against a dictionary of over 42,000 words! A mis-spelt word can be: (a) ignored, (b) added, (c) marked so that it can be easily found by Stylograph, (d) displayed in context, and (e) corrected, in which case all occurences of that word will be corrected automatically in the text file.

It has not been possible to do justice to the full range of facilities and options provided by the above packages in the limited space available for this review. Suffice to say that it is an indication of their power to know that the complete range of OS-9 manuals was prepared and printed using them.

PRINTERS

DYNEER DW16

Price	£329
Type	Daisy Wheel
Interface	RS232 or Centronics
Maximum Speed	16 cps
Graphics Capability	Limited
Maximum Width of Paper	12 inches
Direction of Printing	Bi-directional
Legibility	High

This printer brings better quality printing within the reach of the home user. Although the machine is rather slow, it prints to a standard that would impress any businessman. It is clean and easy to use, with the controls and DIP switches being easily accessible. The manual is more comprehensible than most.

Provided printing time is not at a premium, the DW16 offers unbeatable value for money.

MICROLINE 82A

Price	£299
Type	Dot Matrix
Interface	Centronics (optional RS232)
Maximum Speed	120 cps
Graphics Capability	Block graphics and Hi-res
Maximum Width of Paper	9.5 inches
Direction of Printing	Bi-directional
Legibility	Average

A fast, efficient printer which offers reliability and a sturdy construction. Since it is at the bottom of the Microline range, it does lose a little of its legibility when printing at maximum speed, although this would not trouble most users. All basic functions can be found fairly easily in order to get started.

It has an overall feeling of quality and will be of interest to the home/small business user.

MICROLINE 92

Price	£499
Type	Dot Matrix
Interface	Centronics (optional RS232)
Maximum Speed	160 cps
Graphics Capability	Hi-res facility
Maximum Width of Paper	9.5 inches
Direction of Printing	Bi-directional
Legibility	Good

The Microline 92 has facilities for a wide range of print styles and formats. It is very fast, sturdy and its high resolution features are easy to access. A double strike facility allows the print to approach correspondence quality, although it still falls short of daisy wheel standard.

If you are looking for a machine to handle the donkey work of your printing requirements, then this one is worth of consideration.

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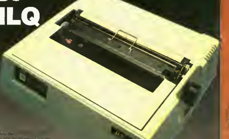

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And it all [illegible] both machines are available with [illegible] IBM Plug 'n Play Kit, ensuring full compatibility [illegible] IBM PC

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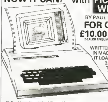

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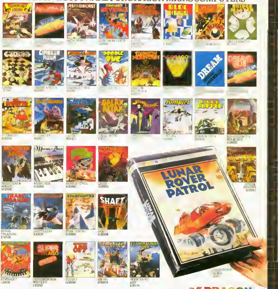
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